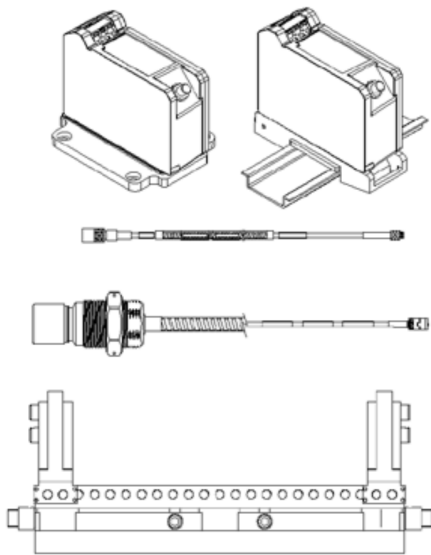


# 3300 XL 25mm Proximity Transducer System

## Datasheet

Bently Nevada Machinery Condition Monitoring

163236 Rev. H



## Description

The 3300 XL 25 mm Transducer System consists of a separate 25 mm probe, an extension cable, and a 3300 XL 25 mm Proximito Sensor. The 0.787 V/mm (20 mV/mil) output gives this system a linear range of 12.7 mm (500 mils). Based on this linear range, the 3300 XL 25 mm Transducer System is suitable for measuring differential expansion (DE) on mid-size to large steam turbine generators caused by the difference in growth rates between the turbine rotor and the machine stator (casing).

## Measuring Differential Expansion (DE)

The Differential Expansion measurement is made by two proximity transducers observing a collar or ramp some distance from the thrust bearing. Typical transducer mounting arrangements are:

- Two transducers observing the same side of a collar.
- Two complementary input transducers observing opposite sides of a collar, effectively doubling the measurable DE range.

Two transducers with at least one transducer viewing a ramp on a rotor and the second transducer viewing either a separate ramp or a different location on the rotor to compensate for radial movement. This arrangement adds some error to the measurement, but can measure a longer total DE distance than the complementary measurement.

The criteria for selecting a mounting method are the size of the available target, the expected amount of rotor axial movement and the type of DE target that exists in the machine (collar versus ramp). If sufficient collar height is available, two transducers observing the same side of a collar is the preferred configuration. These two transducers provide redundant measurements.



## System Compatibility

The 3300 XL 25 mm probe comes in a large variety of case configurations to physically replace all standard 7200 25 mm, 7200 35 mm and 25 mm DE Integral transducer systems (including side and rear exit probes). The Proximitor Sensor also has an output that is identical to that of the 7200 and 25 mm DE Integral systems, allowing customers to upgrade without requiring any changes in the monitor configuration. When upgrading from previous systems, every transducer system component (probe, extension cable, and Proximitor Sensor) must be replaced with 3300 XL 25 mm components.

## Proximity Probe and Extension Cable

The 3300 XL 25 mm probe is designed for maximum survivability in the harshest steam turbine DE environments. It can continually operate and maintain its accuracy in high temperatures up to 200 °C (392 °F), and can withstand intermittent high temperatures up to 250 °C (482 °F). The 25 mm probe has both a front and rear seal which, combined with the FluidLoc cable (standard on all 25 mm probes), prevents moisture from entering the probe tip. Special high-temperature ClickLoc connectors are also standard on the probe and extension cable. Each probe and cable are provided with connector protectors and a disposable connector protector installation tool to ensure that the connectors remain free of contamination. The ClickLoc connector on the probe lead has a removable collar that facilitates routing the cable through tight clearances.

The 3300 XL 25 mm probe is available in many probe case styles, including 1¼-12 or 1½-12 English threads, M30x2 or M39x1.5 metric threads, or side or rear exit probes with a 1.06 or 1.50 inch diameter smooth probe case. Additionally, threaded 3300 XL 25 mm probe cases come standard with a locknut with predrilled safety wire holes.

## Proximitor Sensor

The 3300 XL 25 mm Proximitor Sensor<sup>(1)</sup> has the same advanced features as our previous 3300 XL Proximitor Sensors. Its thin design allows it to be mounted in either a high-density DIN-rail installation or a more traditional panel mount configuration. Improved RFI/EMI immunity allows the 3300 XL Proximitor Sensor to achieve European CE mark approvals without any special mounting considerations. This RFI immunity also prevents the transducer system from being adversely affected by nearby high frequency radio signals. SpringLoc terminal strips on the Proximitor Sensor require no special installation tools and facilitate faster, highly robust field wiring connections.



(1) Proximitor Sensors are supplied by default from the factory calibrated to AISI 4140 steel. Calibration to other target materials is available upon request.

## Mounting Accessories

The correct operation of the transducer system must be verified during installation, and periodically after installation, by physically moving it to simulate the motion of the shaft collar. This requires a mounting bracket that allows the transducer system to slide relative to the shaft rotor and collar.

An optional 3300 XL Sliding Bracket can be ordered for the 25 mm Differential Expansion Transducer for both single transducer and complementary input applications. This mounting bracket makes it easy to accurately verify the transducer system and gap the probes by allowing you to slide the transducer system throughout its linear range. The base plate of the sliding bracket is installed on the inner surface of the turbine case near the differential expansion collar. Probes are installed in the applicable probe adapter, which attaches to the sliding carriage. The sliding carriage slides onto and is secured to the base plate with bolts and safety wire. To verify and install the transducer, loosen the bolts securing the sliding carriage to the base plate and move the sliding carriage and probes. A Dial Indicator Verification Kit accessory provides a reference by measuring the movement of the sliding

carriage. The 3300 XL Sliding Bracket helps ensure that the transducer system remains aligned with and perpendicular to the rotor.

## Specifications

Unless otherwise noted, the following specifications are for a 3300 XL 25 mm Proximitor Sensor, extension cable and probe between 0°C and +45°C (+32°F to +113°F), with a -24 Vdc power supply, a 10 kW load, a Bently Nevada supplied AISI 4140 steel target that is 61 mm (2.4 in) diameter or larger, and a probe gap of 7.0 mm (275 mils). The system accuracy and interchangeability specifications do not apply when using a transducer system calibrated to any target other than a Bently Nevada AISI 4140 steel target.

## Electrical

Proximitor Sensor Input	Accepts one noncontacting 3300 XL 25 mm Proximity Probe and Extension Cable.
Power	Requires -17.5 Vdc to -26 Vdc without barriers at 12 mA maximum consumption, -23 Vdc to -26 Vdc with barriers. Operation at a more positive voltage than -23.5 Vdc can result in reduced linear range.
Supply Sensitivity	Less than 2 mV change in output voltage per volt change in input voltage.
Output resistance	50 W

Probe dc Resistance	
Probe Length (m)	Resistance from the Center Conductor to the Outer Conductor ( $R_{PROBE}$ ) (ohms)
1.0	6.2 ± 0.5
5.0	7.5 ± 0.8
9.0	8.8 ± 1.1

Extension Cable dc Resistance		
Length of Extension Cable (m)	Resistance from Center Conductor to Center Conductor ( $R_{CORE}$ ) (ohms)	Resistance from Coaxial Conductor to Coaxial Conductor ( $R_{JACKET}$ ) (ohms)
4.0	1.0 ± 0.25	0.3 ± 0.1
8.0	2.0 ± 0.5	0.6 ± 0.2

Extension cable capacitance	69.9 pF/m (21.3 pF/ft) typical
Field wiring	0.2 to 1.5 mm <sup>2</sup> (16 to 24 AWG) [0.25 to 0.75 mm <sup>2</sup> (18 to 23 AWG) with ferrules]. Recommend using three-conductor shielded triad cable. Maximum length of 305 metres (1,000 feet) between the 3300 XL Proximitor Sensor and the monitor. See the frequency response graph for signal rolloff at high frequencies when using longer field wiring lengths.
Linear Range	12.7 mm (500 mils). Linear range begins at approximately 0.63 mm (25 mils) from target and is from 0.63 to 13.33 mm (25 to 525 mils) (approximately -1.5 to -11.5 Vdc).
Average Scale Factor (ASF)	0.787 V/mm (20 mV/mil) nominal
Deviation from best fit straight line (DSL)	Less than ±0.31 mm (±12 mils)
System performance over extended temperatures	Over a probe temperature range of -35°C to +120°C (-31°F to +248°F) with the Proximitor Sensor and extension cable between 0°C to +45°C (+32°F to +113°F), the DSL remains within ±0.92 mm (±36 mils).  Over a Proximitor Sensor and extension cable temperature range of -35°C to +65°C (-31°F to +149°F) with the probe between 0°C to +45°C (+32°F to +113°F), the DSL remains within ±0.92 mm (±36 mils).
Frequency Response	0 to 2.7 kHz: +0, -3 dB typical, with up to 305 metres (1000 feet) of field wiring.
Recommended Minimum	61 mm (2.4 in) diameter (flat target)

Target Size			
<b>Effects of 60 Hz Magnetic Fields Up to 300 Gauss (5 metre system)</b>			
Output voltage in mil pp/gauss			
Gap	Proximito Sensor	Probe	Ext. Cable
0.6 mm (25 mil)	0.224	0.008	0.002
7.0 mm (275 mil)	0.223	0.033	0.004
13.3 mm (525 mil)	0.225	0.076	0.023
Electrical Classification		Complies with the European CE mark.	

## Mechanical

Probe Tip Material	Polyetheretherketone (PEEK).
Probe Case Material	AISI 304 stainless steel (SST).
Probe Cable Specifications	75 Ω triaxial, perfluoroalkoxyethylene (PFA) insulated FluidLoc probe cable in the following total probe lengths: 1, 5 or 9 metres.
Extension Cable Material	75 Ω triaxial, perfluoroalkoxyethylene (PFA) insulated FluidLoc cable.
Proximito Sensor Material	A380 aluminum
Sliding Bracket Material	Anodized aluminum and stainless steel
<b>Sliding Bracket Adjustment Range</b>	
Short bracket horizontal	±25.4 mm (±1.0 in.)
Long bracket horizontal	±76.2 mm (±3.0 in.)
Probe adapter vertical adjustment	25.4 mm (1.00 in) total travel
System Length	5 or 9 metres including extension cable
Probe and Extension Cable Armor (optional)	Flexible AISI 302 SST with PFA outer jacket.
Tensile	330 N (75 pounds) probe case to

Strength (maximum rated)	probe lead. 270 N (60 pounds) at probe lead to extension cable connectors.
Connector material	Gold-plated brass and gold-plated beryllium copper

Torque Specifications		
Description	Maximum Rated	Recommended
All threaded probe cases	163 N•m (120 ft•lb)	68 N•m (50 ft•lb)
M5x.8 sliding bracket cap screws	9.6 N• (85 in•lb)	7.3 N•m (65 in•lb)
M6x1 sliding bracket cap screw (probe clamp)	10.7 N•m (95 in•lb)	7.3 N•m (65 in•lb)

Connector-to-connector Torque	
Recommended torque	Finger tight
Maximum torque	0.565 N•m (5 in•lb)
Minimum Bend Radius (with or without sst armor)	25.4 mm (1.0 in)
System Mass (typical)	
Probe	230 g (8.1 oz) (minimum length case, 1m lead, no armor)
	330 g (11.6 oz) (minimum length case, 1m lead, with armor)
	For longer case lengths add 5.7 g/mm (5.1 oz/in).
	For 5 m probe length add 180 g (6.3 oz) for non-armored probe or 620 g (22 oz) for armored probe.
Extension Cable	For 9 m probe length add 360 g (13 oz) for non-armored probe or 1240 g (44 oz) for armored probe.
	45 g/m (0.5 oz/ft)
Armored Extension Cable	140 g/m (1.5 oz/ft)
Proximito Sensor	255 g (9 oz)
Sliding Bracket	Short with one probe adapter: 580

Connector-to-connector Torque	
	g (20.5 oz)
	Long with two probe adapters: 1500 g (53 oz)



assembly of the probe causing media leakage into surrounding areas. Bently Nevada will not be held responsible for any damages resulting from leaking 3300 XL proximity probes. In addition, 3300 XL proximity probes will not be replaced under the service plan due to probe leakage.

## Environmental Limits

### Probe Temperature Range

Operating and Storage Temperature	-35°C to +200°C (-31°F to +392°F)
Short Term Operating and Storage Temperature	+250 °C (482 °F) max for less than 24 hours

### Extension Cable Temperature Range

Operating and Storage Temperature	-35°C to +200°C (-31°F to +392°F)
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### Proximitior Sensor Temperature Range

Operating Temperature	-51°C to +100°C (-60°F to +212°F)
Storage Temperature	-51°C to +105°C (-60°F to +221°F)

### Sliding Bracket Temperature Range

Operating and Storage Temperature	-35°C to +200°C (-31°F to +392°F)
Relative Humidity	100% condensing, non-submersible when connectors are protected. Tested to IEC 68-2-3 damp heat.
Probe Pressure	3300 XL probes are designed to seal differential pressure between the probe tip and case. The probe sealing material consists of a Viton O-ring and compression seal. Probes are not pressure tested prior to shipment. Contact our custom design department if you require a test of the pressure seal for your application.



It is the responsibility of the customer or user to ensure that all liquids and gases are contained and safely controlled should leakage occur from a proximity probe. In addition, solutions with high or low pH values may erode the tip

## Compliance and Certifications

### FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

### EMC

EN 61000-6-2

EN 61000-6-4

EMC Directive 2014/30/EU

### RoHS

RoHS Directive 2011/65/EU

### Maritime

ABS 2009 Steel Vessels Rules

1-1-4/7.7,4-8-3/1.11.1,4-9-7/13

140979.	(see Temperature Schedule table to follow)
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## Hazardous Area Approvals



For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) available from [Bently.com](http://Bently.com).

### CSA/NRTL/C

#### 3300 XL Proximitior Sensor

<p><b>ia</b></p> <p>When installed with intrinsically safe zener barriers per drawing 141092 or when installed with galvanic isolators.</p>	<p>Class I, Zone 0: AEx/Ex ia IIC T4/T5 Ga;          Class I, Groups A, B, C, and D,          Class II, Groups E, F and G,          Class III;</p> <p>T5 @ Ta= -55°C to + 40°C.          T4 @ Ta= -55°C to + 80°C.</p>
<p><b>nA, ec</b></p> <p>When installed without barriers per drawing 140979.</p>	<p>Class I, Zone 2: AEx/Ex nA IIC T4/T5 Gc;          Class I, Division 2, Groups A, B, C, and D;          Class I, Zone 2: AEx/Ex ec IIC T4/T5 Gc;          Class I, Division 2, Groups A, B, C, and D;</p> <p>T5 @ Ta= -55°C to + 40°C          T4 @ Ta= -55°C to + 80°C</p>



#### 3300 XL Probe

<p><b>ia</b></p> <p>When installed with intrinsically safe zener barriers per drawing 141092 or when installed with galvanic isolators.</p>	<p>Class I, Zone 0: AEx/Ex ia IIC T5...T1 Ga;          Class I, Groups A, B, C, and D,          Class II, Groups E, F, and G,          Class III;</p> <p>(see Temperature Schedule table to follow)</p>
<p><b>nA, ec</b></p> <p>When installed without barriers per drawing</p>	<p>Class I, Zone 2: AEx/Ex nA IIC T5...T1 Gc;          Class I, Division 2, Groups A, B, C, D;          Class I, Zone 2: AEx/Ex ec IIC T5...T1 Gc; Class I, Division 2, Groups A, B, C, and D;</p>

**ATEX/IECEX**

Ui= -28V	Ii= 140 mA
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**3300 XL Proximito Sensor**

<b>ia</b>	 Ex ia IIC T4/T5 Ga Ex ia IIIC T90C/T105C Dc For EPL Dc:  T105C @ Ta = -55°C to 100°C T90C @ Ta = -55°C to +85°C	
	Ui= -28V	Uo= -28V
	Ii= 140mA	Io= 140mA
	Pi= 0.91W	Po= 0.742W
	Ci= 47nF	Co= 1.5nF
	Li= 1460µH	Lo= 610µH
	 Ex nA IIC T4/T5 Gc Ex ec IIC T4/T5 Gc	
Ui= -28V	Ii= 140 mA	
T5 @ Ta= -55° C to + 40° C T4 @ Ta= -55 °C to + 80° C		



**Temperature Schedule**

Temperature Classification	Ambient Temperature (Probe Only)
For EPL Ga and Gc	
T1	-55°C to +232°C
T2	-55°C to +177°C
T3	-55°C to +120°C
T4	-55°C to +80°C
T5	-55°C to +40°C
For EPL Dc	
T280°C @ Ta	-55°C to +232°C
T225°C @ Ta	-55°C to +177°C
T170°C @ Ta	-55°C to +120°C
T130°C @ Ta	-55°C to +80°C
T105°C @ Ta	-55°C to +100°C
T90°C @ Ta	-55°C to +40°C

**3300 XL Probe**



Probe entity parameters are met when used with BN extension cables and connected to BN Prox.

<b>ia</b>	 Ex ia IIC T5...T1 Ga, (see Temperature Schedule table to follow)  Ex ia IIIC T90°C ... T280°C Dc For EPL Dc:	
	Ui= -28V	Ci = 1.5 nF
	Ii = 140 mA	Li =610 µH
	Pi = 0.91 W	
<b>nA,ec</b>	 Ex nA IIC T5...T1 Gc, Ex ec IIC T5...T1 Gc, (see Temperature Schedule table to follow)	



## Hazardous Area Conditions of Safe Use

### CSA/NRTL/C:

#### **ia**

Install per Bently Nevada drawing 141092.

#### **nA, ec**

Install per Bently Nevada drawing 140979.

### ATEX/IECEx:

#### **ia**

Install per Bently Nevada drawing 141092.

#### **nA, ec**

The Prox must be installed so as to provide the terminals with a degree of protection of at least IP54.

## Ordering Information



For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) available from [Bently.com](http://Bently.com).

### 3300 XL 25 mm Proximity Probe

33085I-AA-BBB-CCC-DD-EE-FF

#### A: Probe Case Type Option



Standard case types are options 01 through 04.

<b>01</b>	1 1/4 - 12 thread
<b>02</b>	M30x2 Thread
<b>03</b>	Smooth 1.06 in. dia. - Rear Exit
<b>04</b>	Smooth 1.06 in. dia. - Side Exit
<b>05</b>	1 1/2 - 12 thread
<b>06</b>	M39x1.5 Thread
<b>07</b>	Smooth 1.5 in. dia. - Rear Exit
<b>08</b>	Smooth 1.5 in. dia. - Side Exit

#### B: Unthreaded Length Option



Standard unthreaded length is 0.0 mm or 0.0 in. There is an additional charge for non-standard unthreaded lengths.



Unthreaded length must be at least 26 mm or 1.0 in. less than the case length. Unthreaded length option is 0.0 for smooth case probe types.

#### Metric Case Types Order in increments of 2 mm

Maximum Unthreaded Length	224 mm
Minimum Unthreaded Length	0 mm
Example	<b>050</b> = 50 mm

#### English Case Types Order in increments of 0.1 in.

Maximum Unthreaded Length	8.9 in.
Minimum	0.0 in.

Unthreaded Length	
Example	<b>025</b> = 2.5 in.

#### C: Overall Case Length Option



Standard case lengths are 26, 40, 60, 80, 100 and 250 mm for Metric cases and 1.0, 2.0, 3.0, 4.0, and 9.9 in. for English cases. There is an additional charge for non-standard lengths.

#### Metric Case Types Order in increments of 2 mm

Maximum Unthreaded Length	250 mm
Minimum Unthreaded Length	26 mm
Example	<b>050</b> = 50 mm

#### English and Smooth Case Types Order in increments of 0.1 in.

Maximum Unthreaded Length	9.9 in.
Minimum Unthreaded Length	1.0 in. (1.5 in. for side exit case types)
Example	<b>020</b> = 2.0 in.

#### D: Total Length Option

<b>10</b>	1.0 metre (3.3 feet)
<b>50</b>	5.0 metres (16.4 feet)
<b>90</b>	9.0 metres (29.5 feet)



Five metre probes are designed for use with the five metre Proximitor Sensor ONLY.

#### E: Armor Option

<b>00</b>	No Armor
<b>01</b>	with SST Armor



When ordering SST Armor, the minimum probe length is 28 mm or 1.1 inch.

#### F: Agency Approval Option

<b>00</b>	No Approvals
<b>05</b>	Multiple Approvals



For a shorter delivery time, order commonly stocked multi-approvals probes.



Currently, stocked probes consist of the following part numbers:

- 330851-01-000-020-10-00-05
- 330851-01-000-030-10-00-05
- 330851-02-000-040-10-00-05
- 330851-02-000-080-10-00-05
- 330851-04-000-015-10-00-05
- 330851-04-000-020-10-00-05

## 3300 XL 25 mm Proximator Sensor

### 330850-AA-BB

#### A: Total Length and Mounting Option

<b>5 0</b>	5.0 metres (16.4 feet) system length, panel mount
<b>5 1</b>	5.0 metres (16.4 feet) system length, DIN mount
<b>9 0</b>	9.0 metres (29.5 feet) system length, panel mount
<b>9 1</b>	9.0 metres (29.5 feet) system length, DIN mount

#### B: Agency Approval Option

<b>0 0</b>	No Approvals
<b>0 5</b>	Multiple Approvals

## 3300 XL 25 mm Extension Cable

### 330854-AAA-BB-CC



Make sure that the extension cable length and the probe length, when added together, equal the Proximator Sensor total length.

#### A: Cable Length Option

<b>0 4 0</b>	4.0 metres (13.1 feet)
<b>0 8 0</b>	8.0 metres (26.2 feet)

#### B: Armor and Cable Option

<b>2 4</b>	High Temperature FluidLoc cable
<b>2 5</b>	Armored High Temperature FluidLoc cable

#### C: Agency Approval Option

<b>0 0</b>	No Approvals
<b>0 5</b>	Multiple Approvals

## 3300 XL Sliding Bracket

### 330853-AA-BB

#### A: Bracket Length Option

<b>0 1</b>	Short – Single Differential Expansion Application
<b>0 2</b>	Long – Complementary Input Differential Expansion Application

#### B: Probe Adapter Option

<b>0 0</b>	Adapter not supplied
<b>0 1</b>	1/4-12 Thread
<b>0 2</b>	M30x2 Thread

	1.06 in diameter Smooth
<b>0 3</b>	<div style="border: 1px solid black; padding: 5px;">            When probe adapters are selected, one is supplied with the short bracket length and two are supplied with the long bracket length.         </div>

## Dial Indicator Verification Kit

The dial indicator verification kit contains all of the parts needed to verify accuracy of a differential expansion installation. The kit contains a dial indicator, magnetic base, flex mounting arm, and indicator holding rod all housed in a protective carry case

### 163854-AA

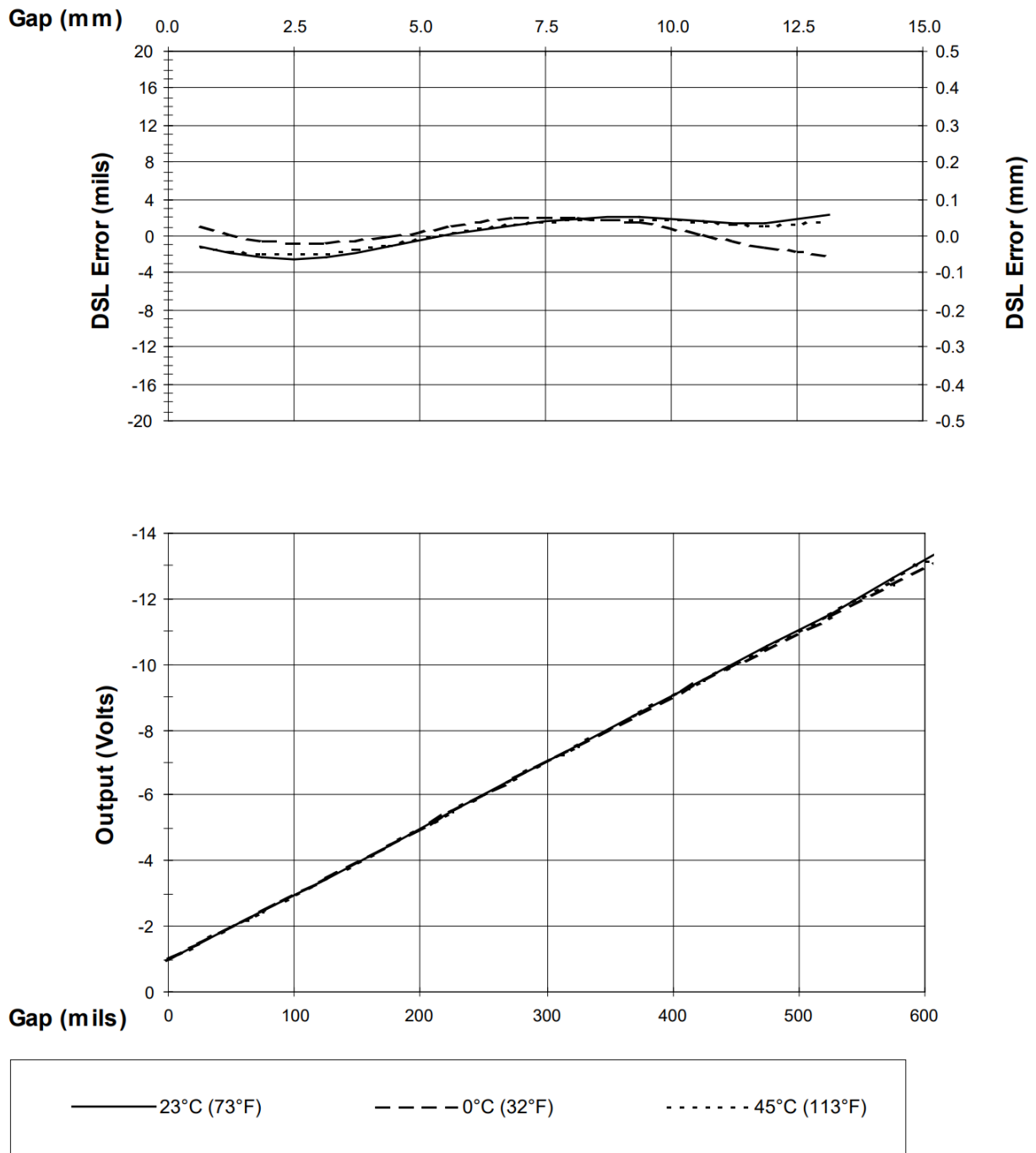
#### A: Measurement Units Option

<b>0 1</b>	English Units (0-2 Inch)
<b>0 2</b>	Metric Units (0-50 mm)

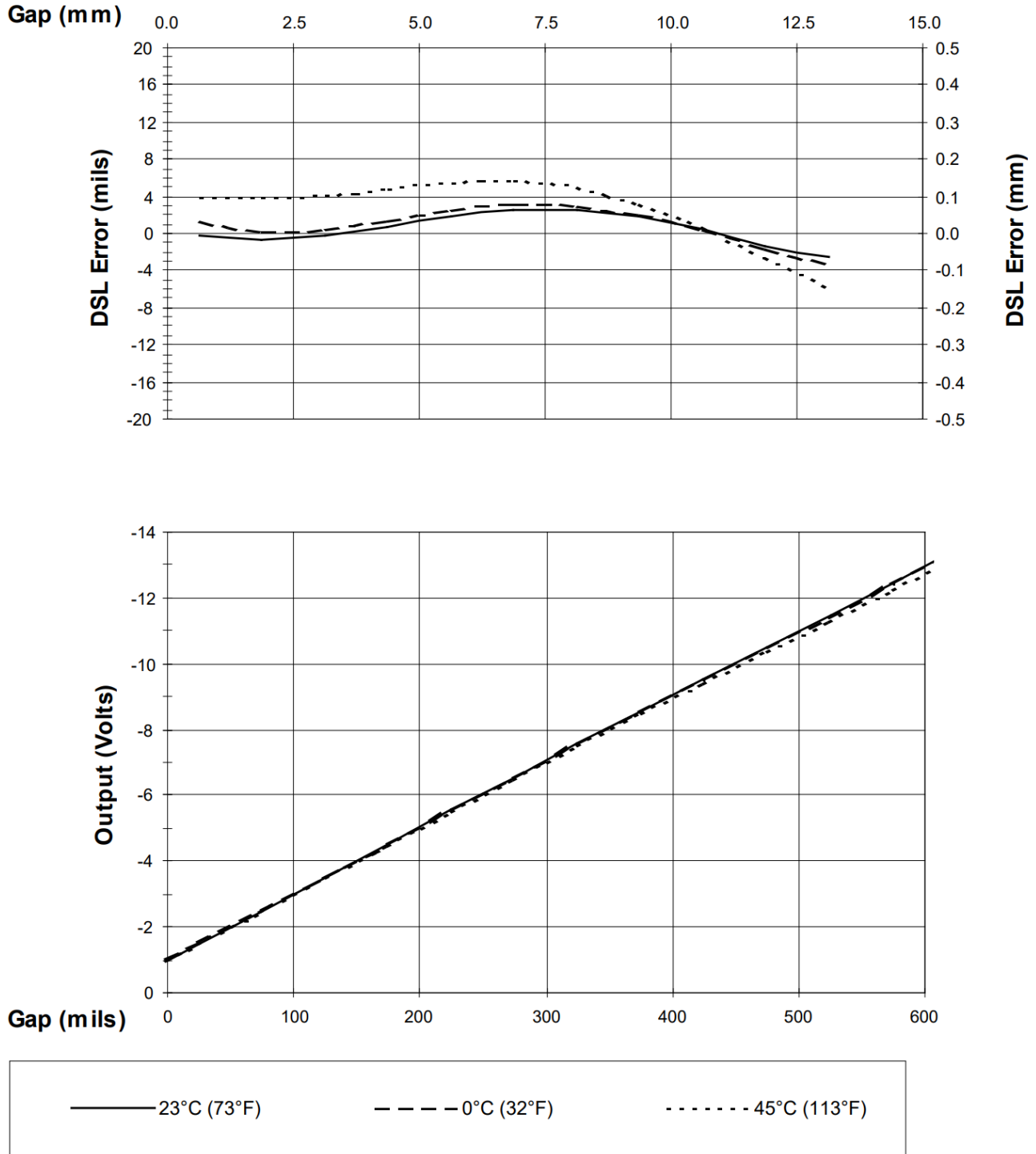
## Accessories

163235	3300 XL 25 mm Manual	29660-01	Transducer Clamp. Optional mounting clamp for the 1.06" dia smooth 3300 XL 25mm probe case types (-03 and -04 only).
161984	Performance Specification	136536-01	Connector Protector Adapter. Makes our previous 3300 connector protector kits compatible with 3300 XL probes and extension cable connectors.
148722-01	3300 XL Test Plug. The 3300 XL Test Plug has three self-contained test pins attached to three color-coded wires 1 metre in length, each terminated in a banana plug. The three-pin adapter plugs into the test pin holes on 3300 XL-style Proximitors sensors. It is used to check the performance of the Proximitors sensor from the test pin holes in the terminal strip without requiring the removal of the field wiring.	40180-02	Connector Protectors. Package contains 10 pairs of connector protectors.
330187	Extended Range Micrometer Kit. The extended range micrometer kit contains a precision micrometer and AISI 4140 target and is intended for acceptance testing of our Bently Nevada extended range transducers. Bracket options are available to hold 8mm – 35mm probes and also the 50 mm DE transducer.	03839410	Male Connector Protector. Placed on the extension cable to connect to the female connector protector on the probe and provide environmental protection of connectors.
02120015	Bulk field wire. 1.0 mm <sup>2</sup> (18 AWG), 3 conductor, twisted, shielded cable with drain wire. Specify length in feet.	03839420	Female Connector Protector. Placed on the probe lead to connect to the male connector protector on the extension cable and provide environmental protection of connectors. Also placed on the extension cable to slide over the Proximitors Sensor connection and protect it from the environment.
02173009	Bulk field wire. 1.0 mm <sup>2</sup> (18 AWG), 3 conductor, twisted, shielded cable. Specify length in feet.	330153-08	3300 XL 25 mm Connector Kit. Used on 3300 XL 25 mm probes and extension cables. Contains one male (removable nut) and female ClickLoc connectors, color-coded sleeves and two pieces slit PFA tubing.
138492-01	Replacement panel-mount mounting pad	163356	Connector Crimp Tool Kit. Includes one set of multi-connector inserts and connector installation instructions. Supplied with carrying case.
138493-01	Replacement DIN-mount mounting pad		
04310310	3300 XL Proximitors Sensor Panel-mount Screws. Package includes four 6-32 UNC thread forming mounting screws (Supplied standard with 3300 XL Proximitors Housings [3300 XL option] ).		
03200006	Silicone self-fusing tape. A 9.1 metre (10 yard) roll of silicone tape to protect connectors. It is easy to install and provides excellent electrical isolation and protection from the environment. It is not recommended for use inside the casing of the machine.		
40113-02	Connector Protector Kit. Connector Protector Kit for 3300 XL probes and extension cables, including connector protectors and installation tools.		

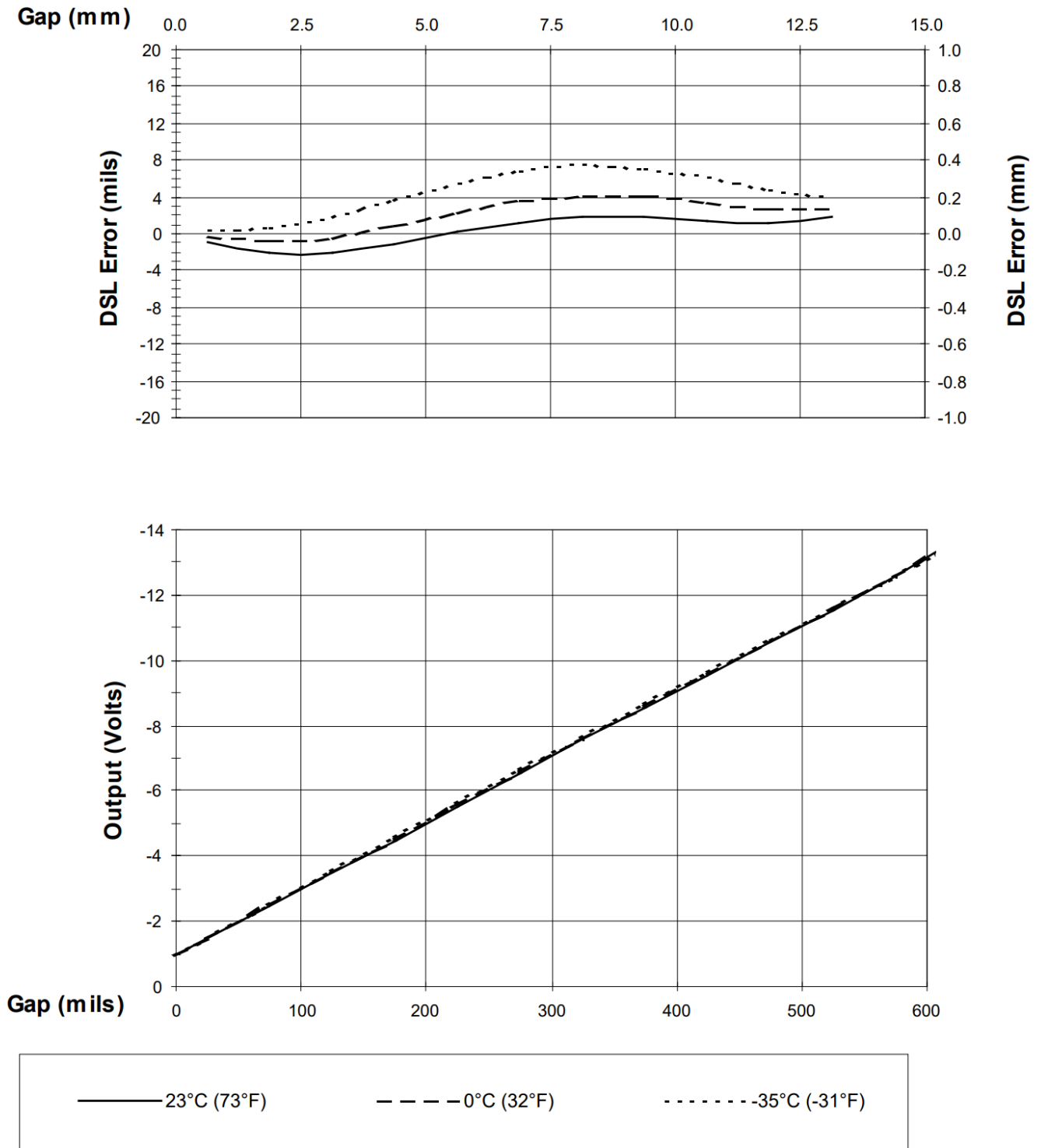
## Graphs and Figures



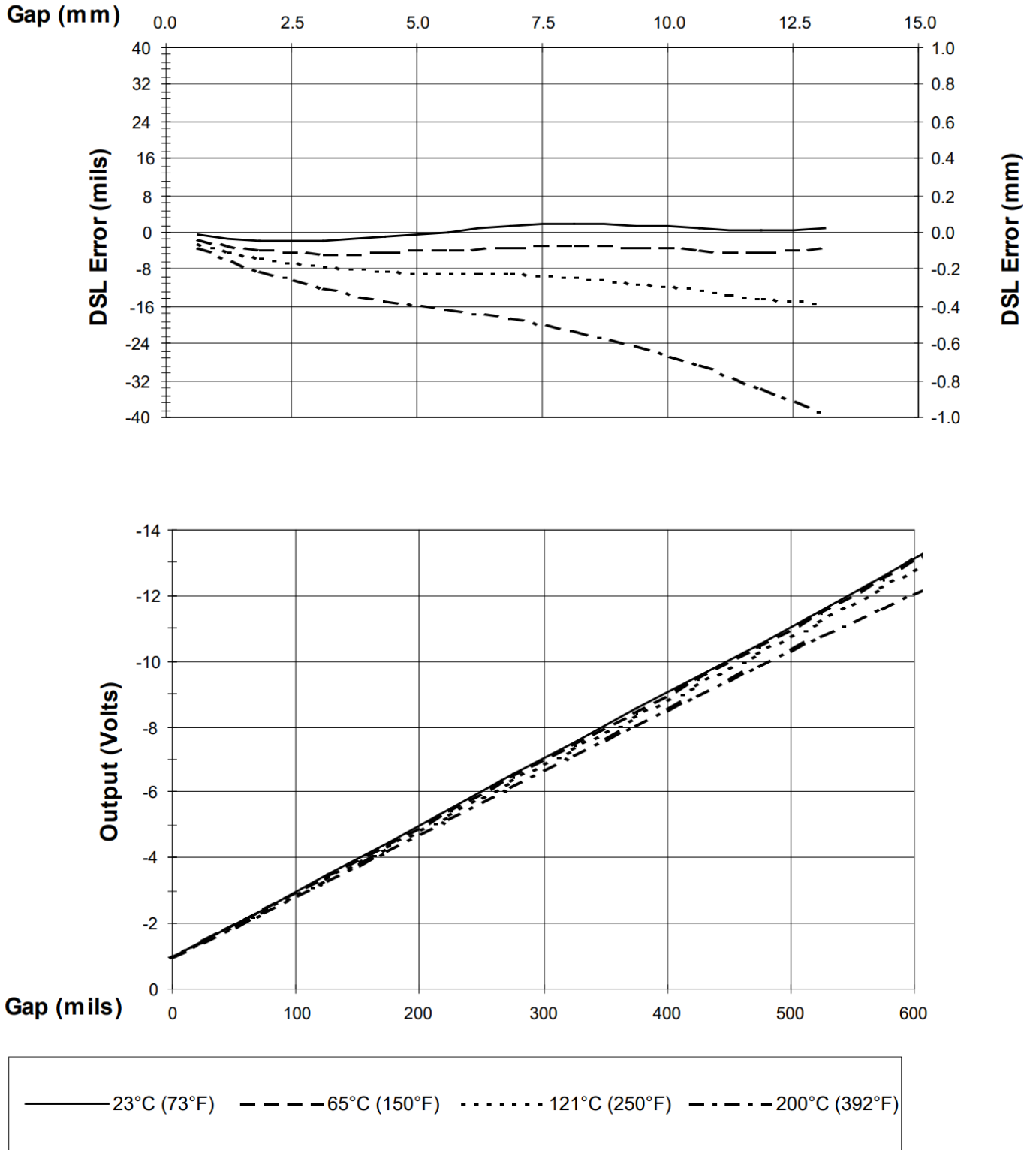
**Figure 1: Typical 3300 XL 25mm 5m System Over Ambient Testing Range**



**Figure 2: Typical 3300 XL 25mm 9m System Over Ambient Testing Range**

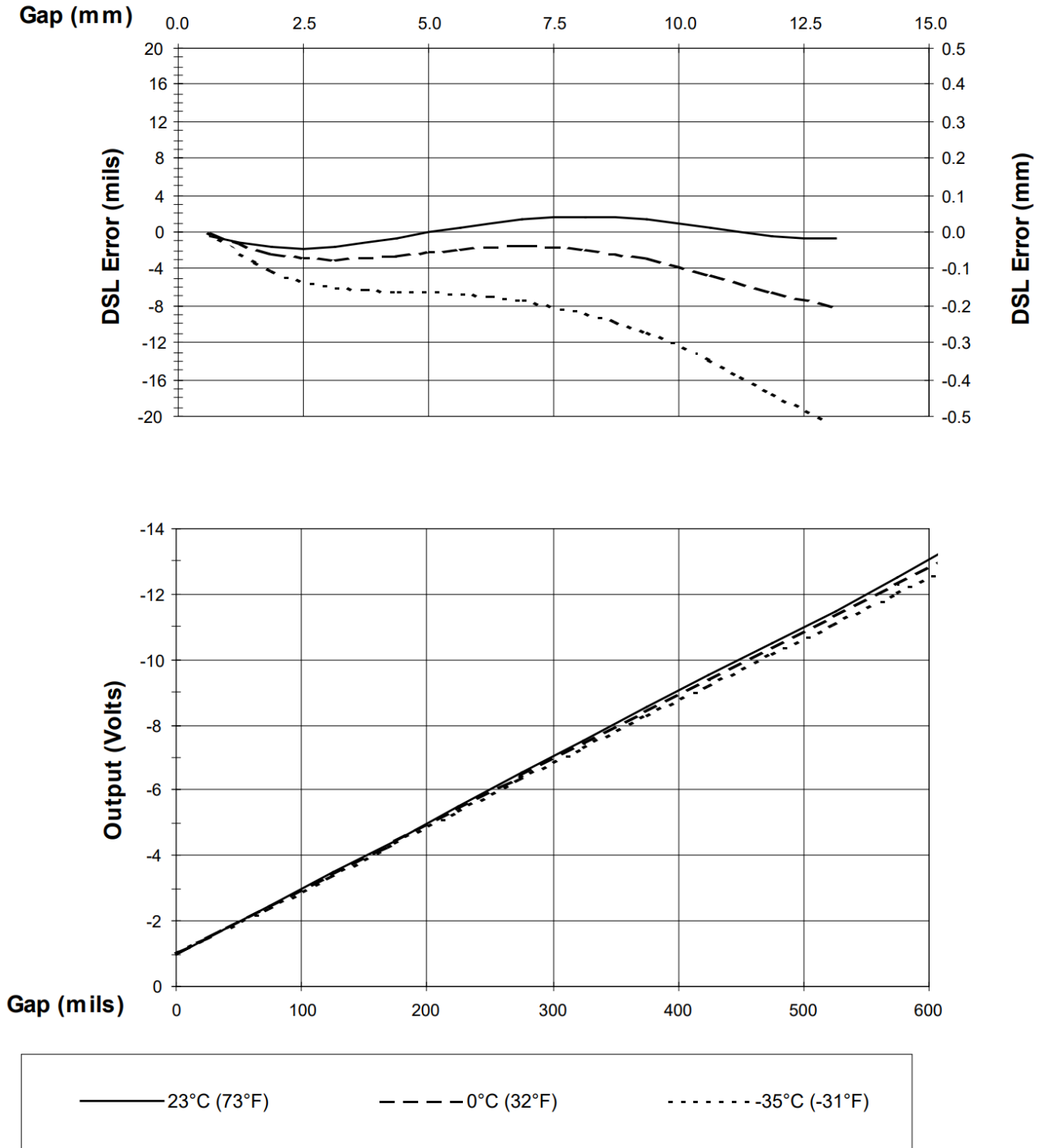


**Figure 3: Typical 3300 XL 25mm Probe + 1m Cable @ Low Temperature (Proximitior Sensor + 4m of Extension Cable @ 25 °C)**

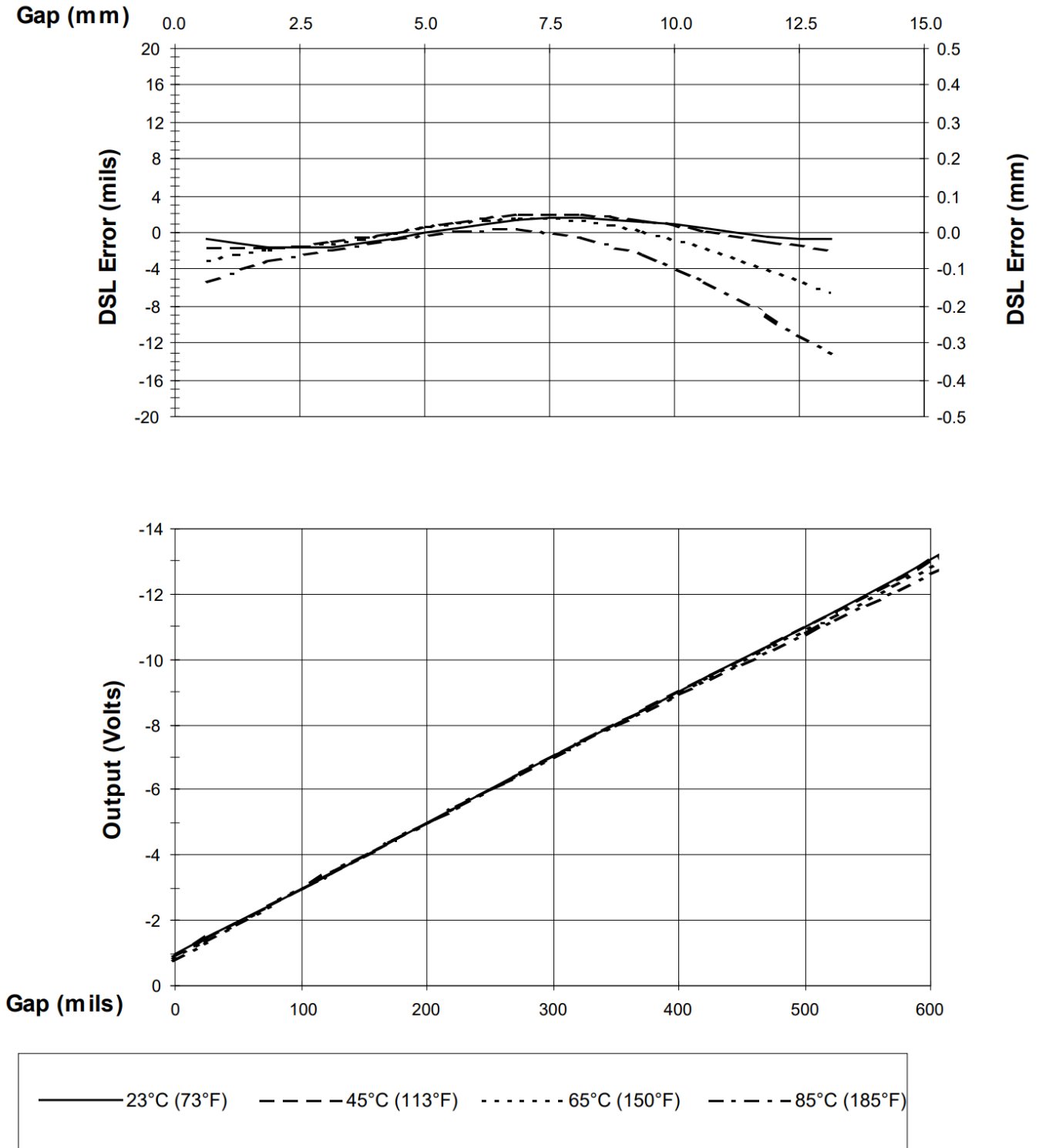


**Figure 4: Typical 3300 XL 25mm Probe + 1m Cable @ High Temperature (Proximitor Sensor + 4m of Extension Cable @ 25 °C)**

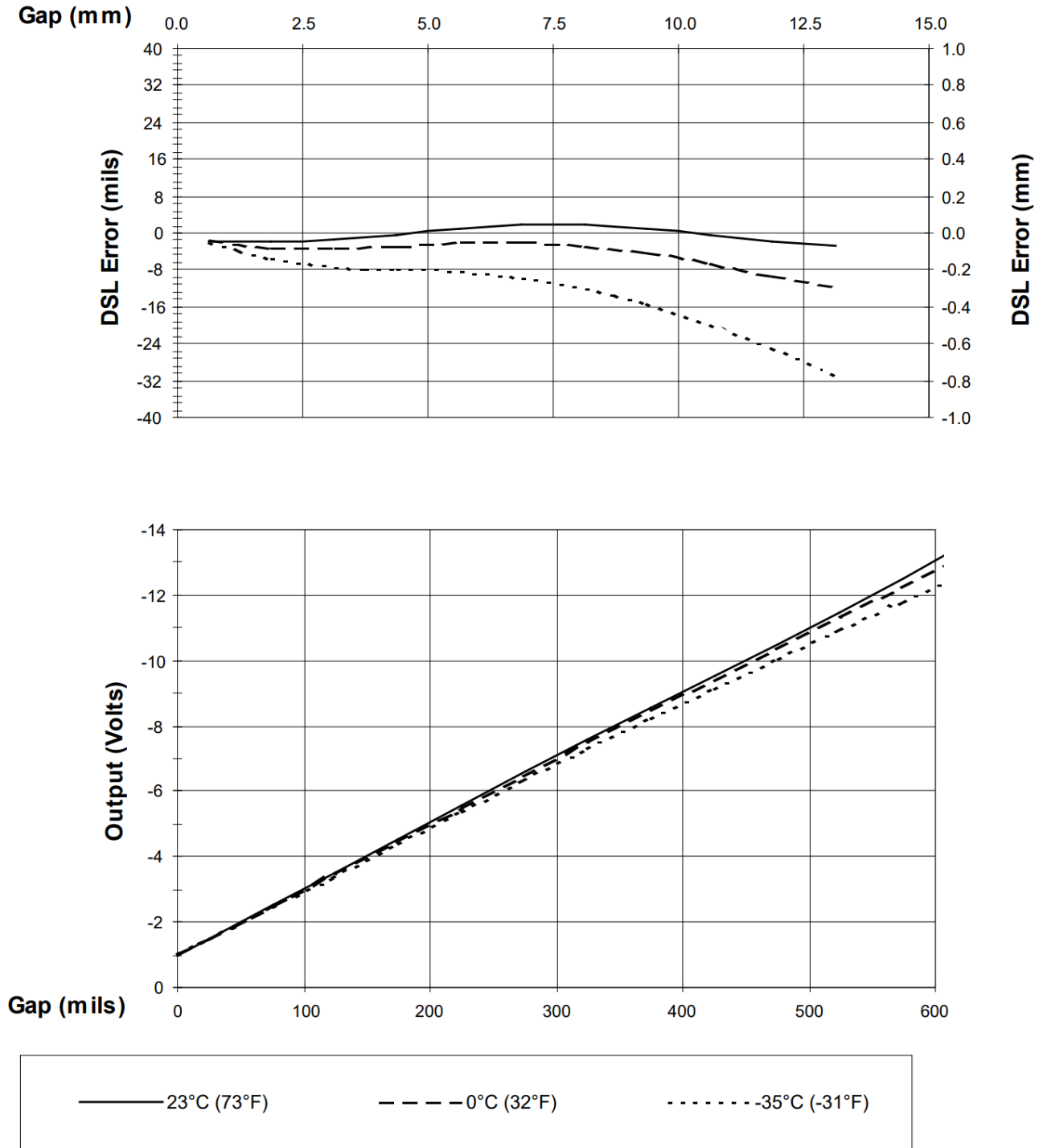




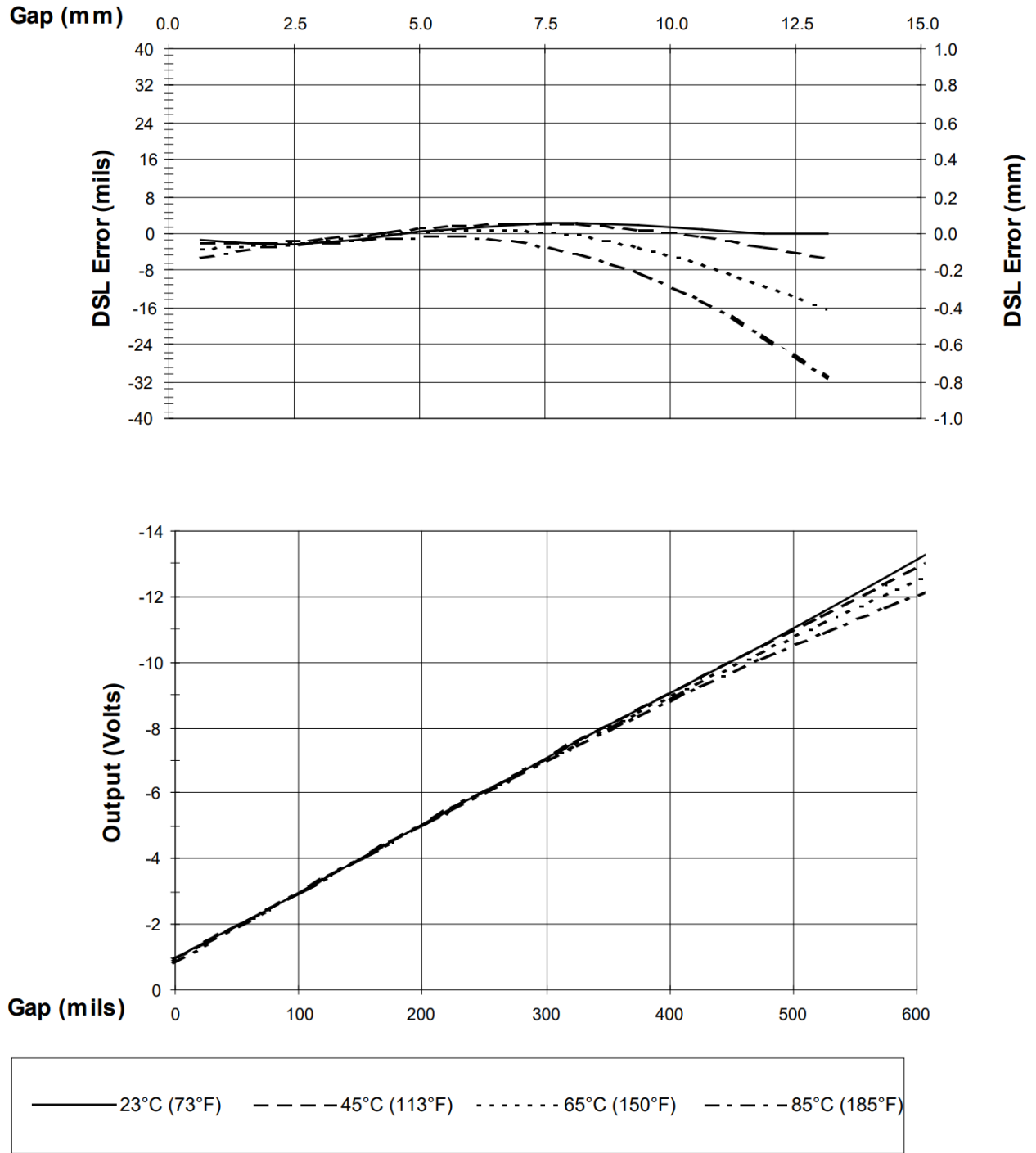
**Figure 5: Typical 3300 XL 25mm 5m Proximity Sensor with 4m of Extension Cable @ Cold Temperature (Probe is at 25°C)**



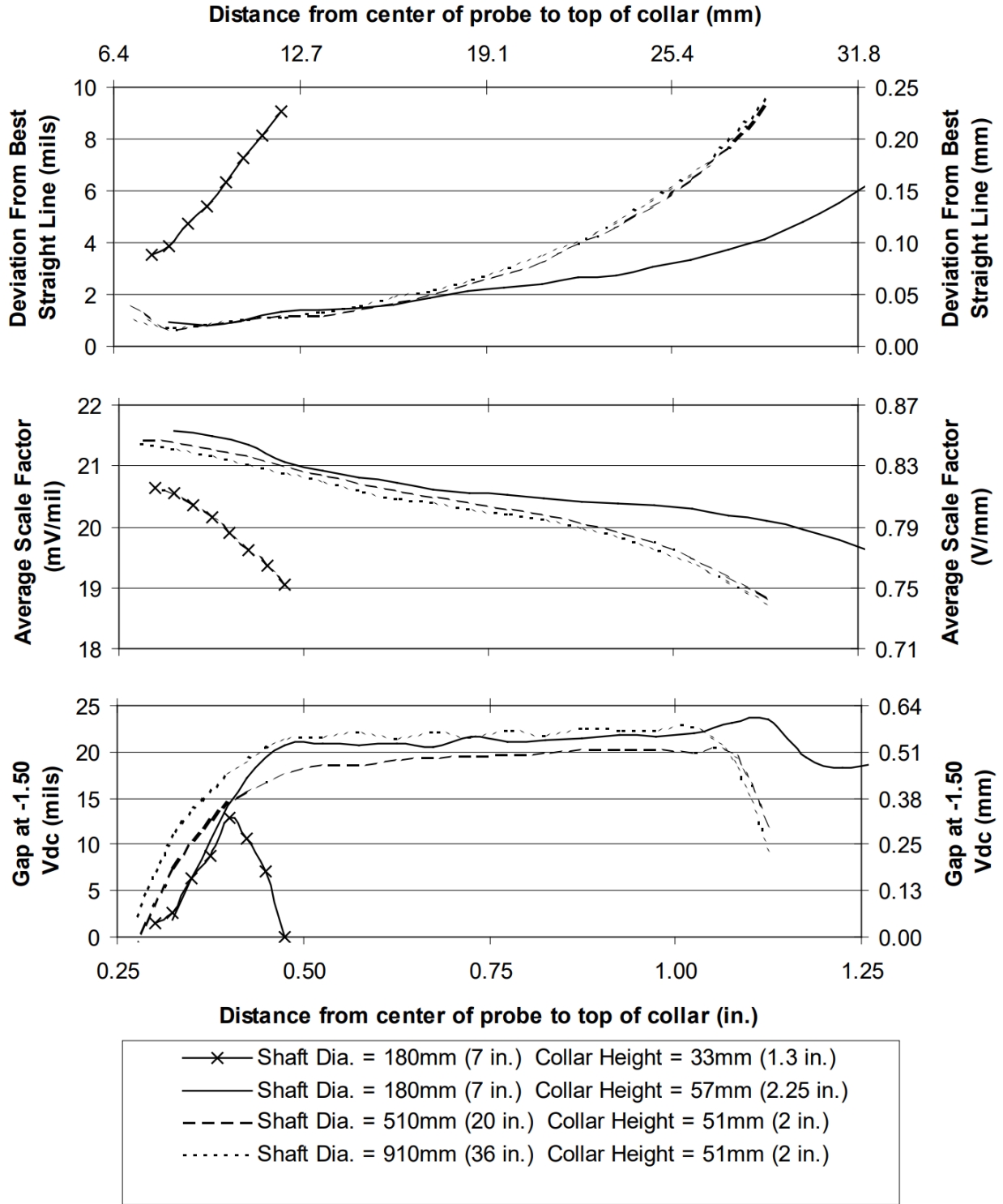
**Figure 6: Typical 3300 XL 25mm 5m Proximity Sensor with 4m Extension Cable @ High Temperature (Probe is at 25°C)**



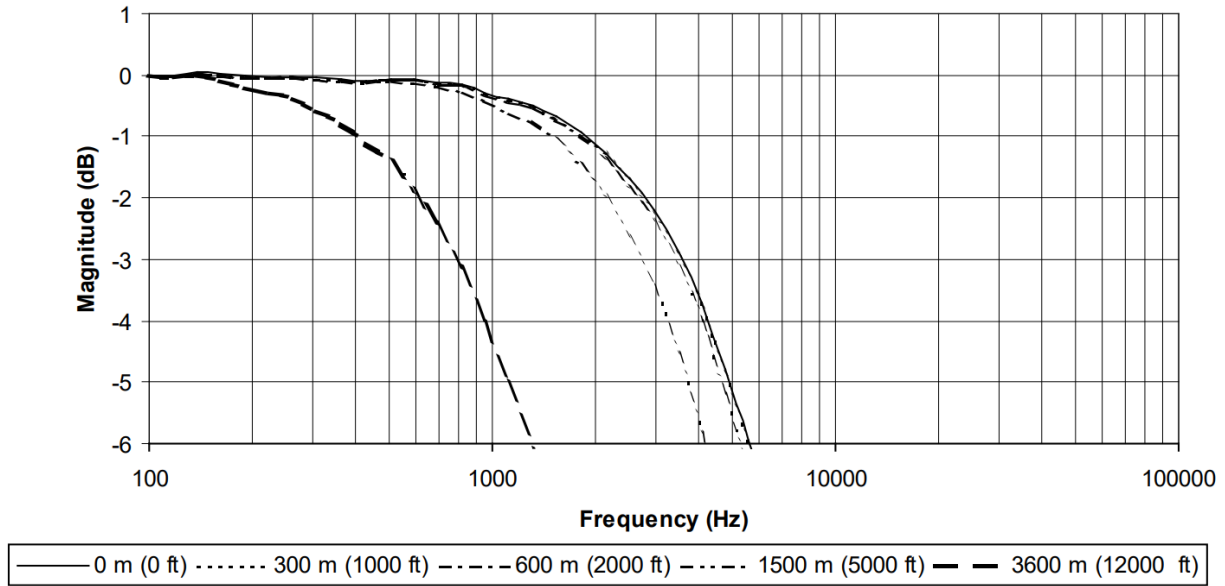
**Figure 7: Typical 3300 XL 25mm 9m Proximitior Sensor with 8m of Extension Cable @ Low Temperature (Probe is at 25°C)**



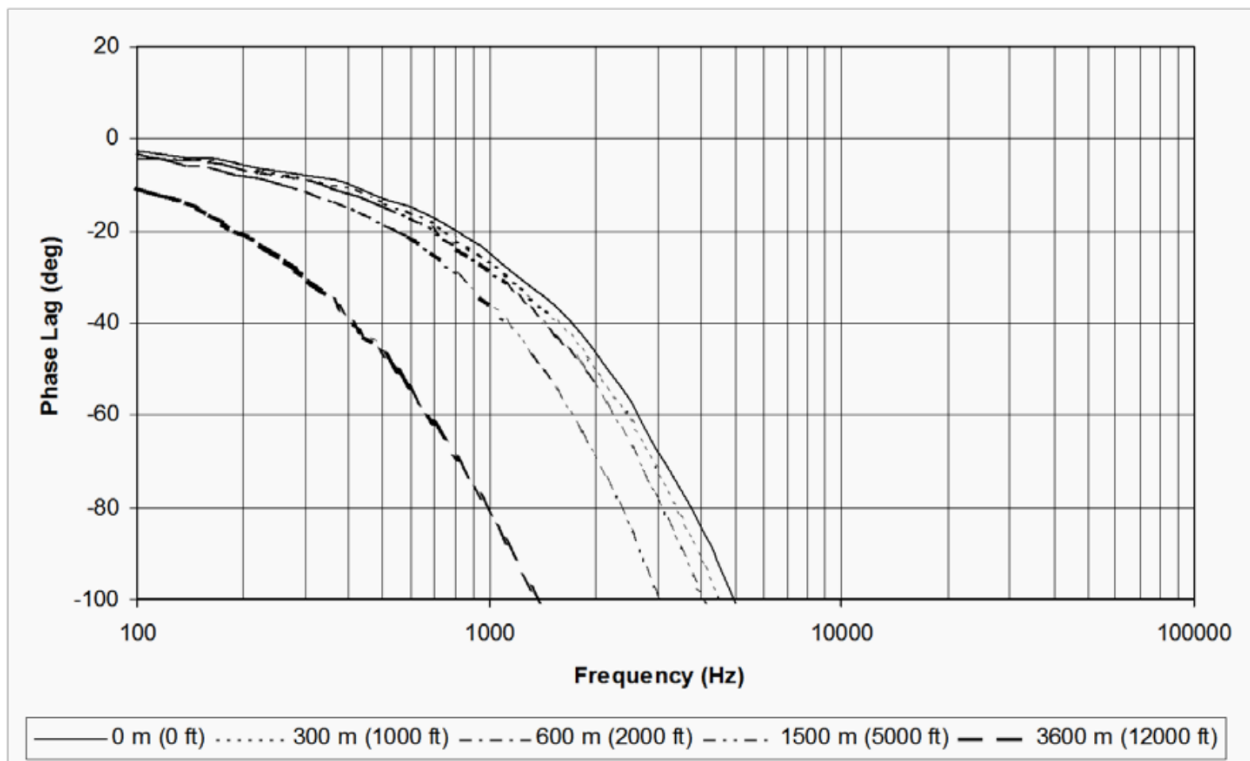
**Figure 8: Typical 3300 XL 25mm 9m Proximitor with 8m of Extension Cable @ High Temperature (Probe is at 25°C.)**



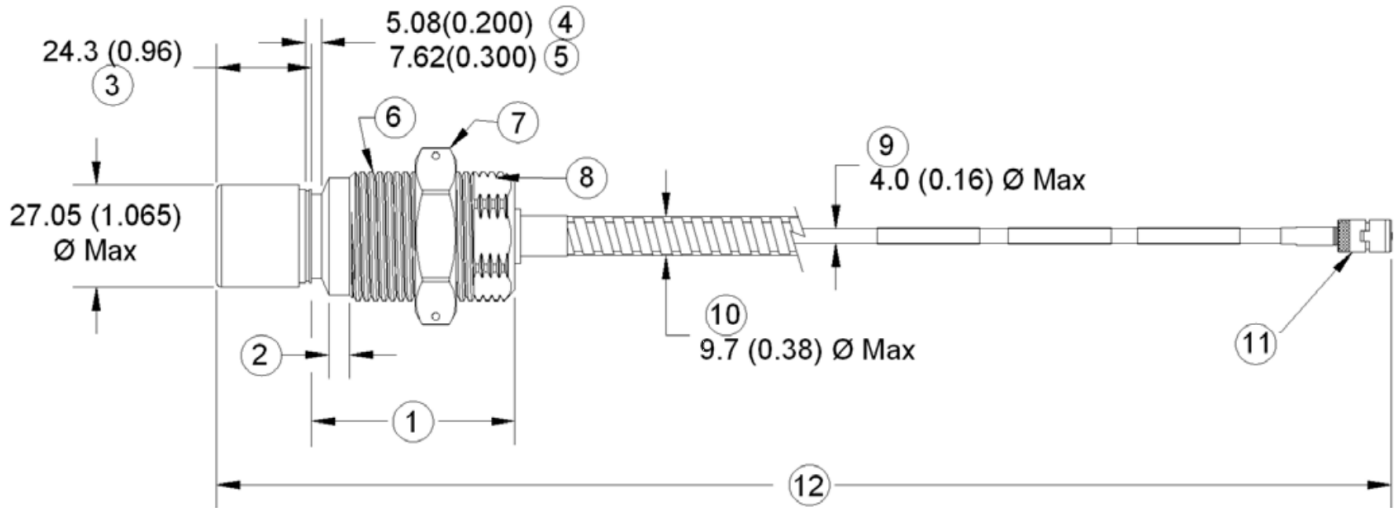
**Figure 9: Variations of Collar Height for typical 3300 XL 25mm System**



**Figure 10: Frequency Response, magnitude of typical 3300 XL 25mm System with various lengths of field wiring, no barriers**

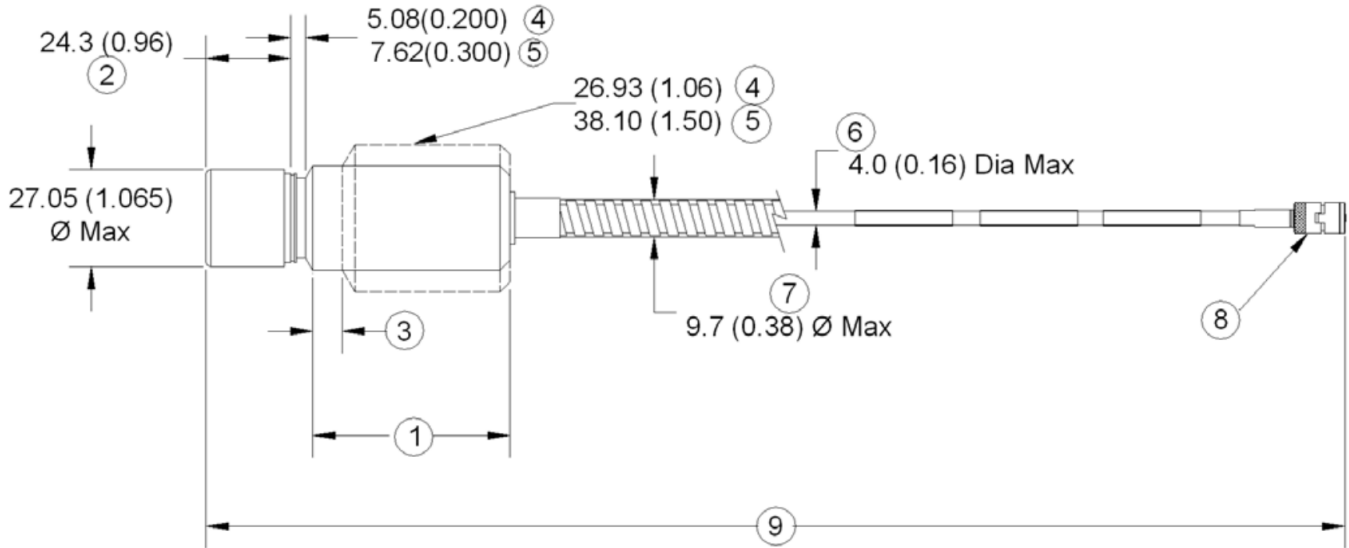


**Figure 11: Frequency Response, phase change of typical 3300 XL 25mm System with various lengths of field wiring, no barriers**



**Figure 12: 330851, 3300 XL 25mm Proximity Probe, Threaded Cases**

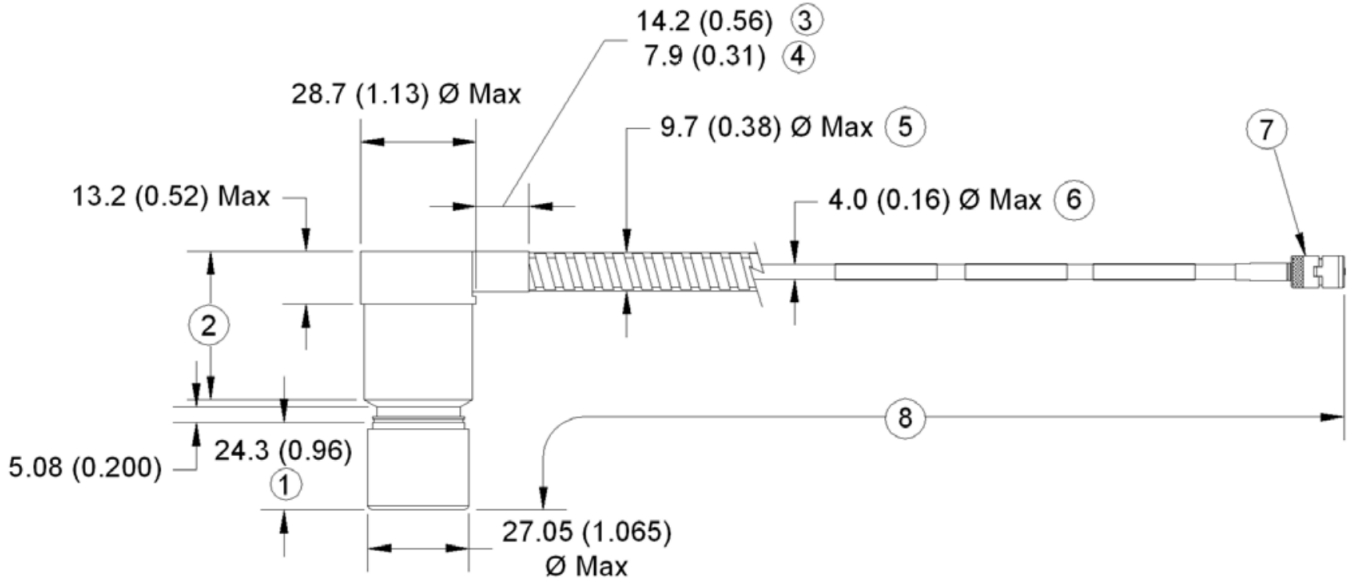
1. Case Length
2. Unthreaded Length
3. Probe Tip
4. Case Options -01 and -02
5. Case Options -05 and -06
6. Case Thread
7. Hex Nut w/Safety Wire Holes
8. Wrench Flats
9. 75 ohm FluidLoc Cable
10. Optional Stainless Steel Armor
11. Removable Nut Connector 5.3 (0.21) Diameter w/Nut Removed
12. Total Length +30%, -0% for 1m Probes and +20%, -0% for 5m and 9m Probes



**Figure 13: 330851, 3300 XL 25mm Proximity Probe, Smooth Cases**

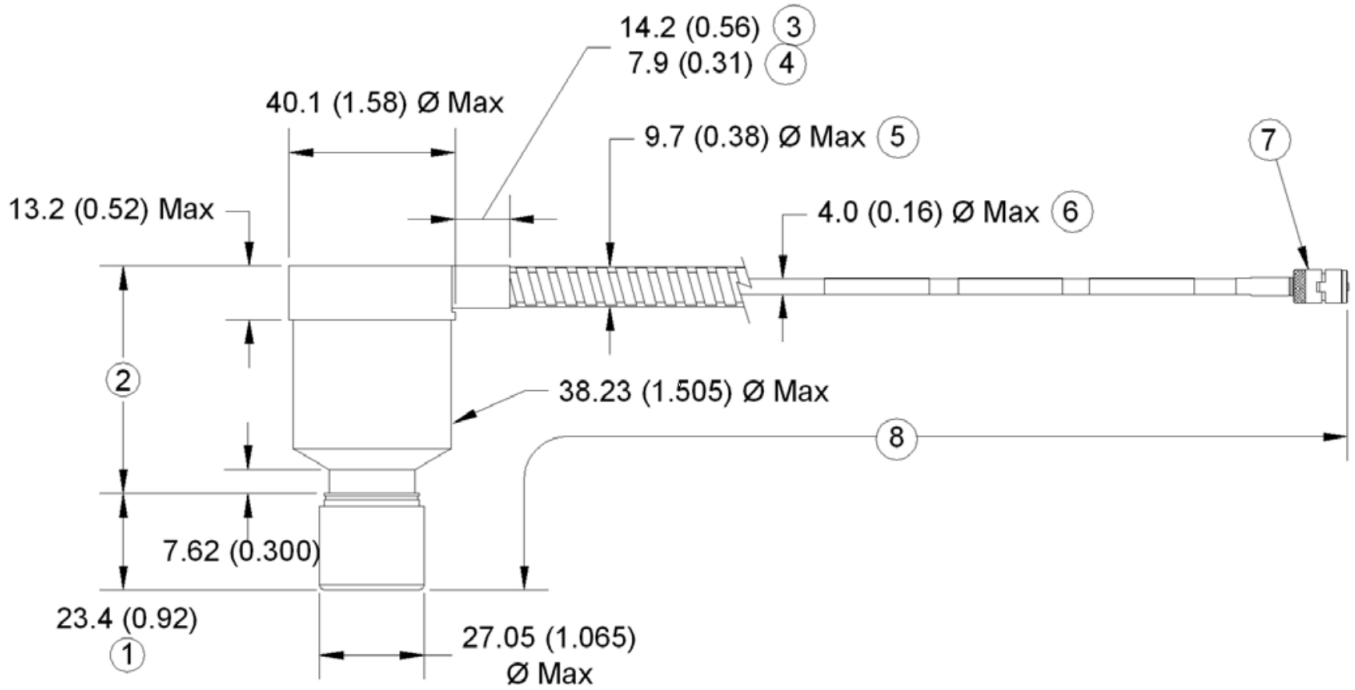
1. Case Length
2. Probe Tip
3. Case Option -07 only
4. Case Option -03 only
5. Case Option -07 only
6. 75 ohm FluidLoc Cable
7. Optional Stainless Steel Armor
8. Removable Nut Connector 5.3 (0.21) Diameter w/Nut Removed
9. Total Length +30%, -0% for 1m Probes and +20%, -0% for 5m and 9m Probes





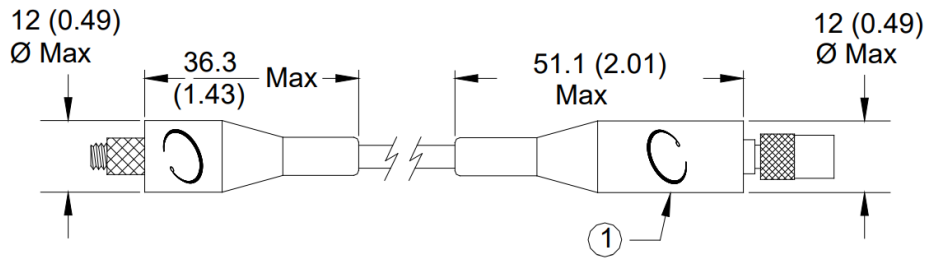
**Figure 14: 330851, 3300 XL 25mm Proximity Probe, Smooth 1.06 Inch Dia. Side Exit Case**

1. Probe Tip
2. Case Length
3. Dimension with SST Armor
4. Dimension without Armor
5. Optional Stainless Steel Armor
6. 75 ohm FluidLoc Cable
7. Removable Nut Connector 5.3 (0.21) Diameter w/Nut Removed
8. Total Length +30%, -0% for 1m Probes and +20%, -0% for 5m and 9m Probes



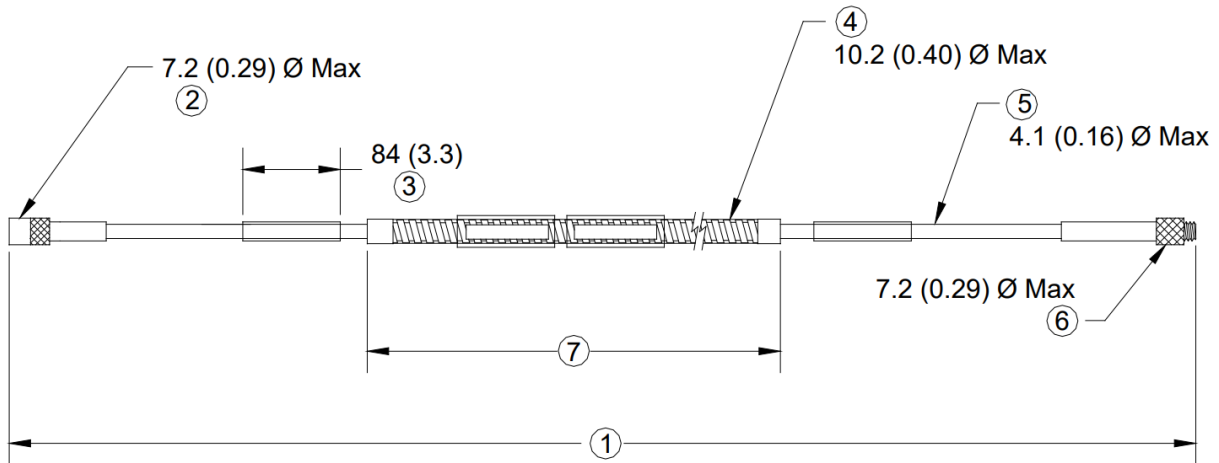
**Figure 15: 330851, 3300 XL 25mm Proximity Probe, Smooth 1.50 Inch Dia. Side Exit Case**

1. Probe Tip
2. Case Length
3. Dimension with SST Armor
4. Dimension without Armor
5. Optional Stainless Steel Armor
6. 75 ohm FluidLoc Cable
7. Removable Nut Connector 5.3 (0.21) Diameter w/Nut Removed
8. Total Length +30%, -0% for 1m Probes and +20%, -0% for 5m and 9m Probes



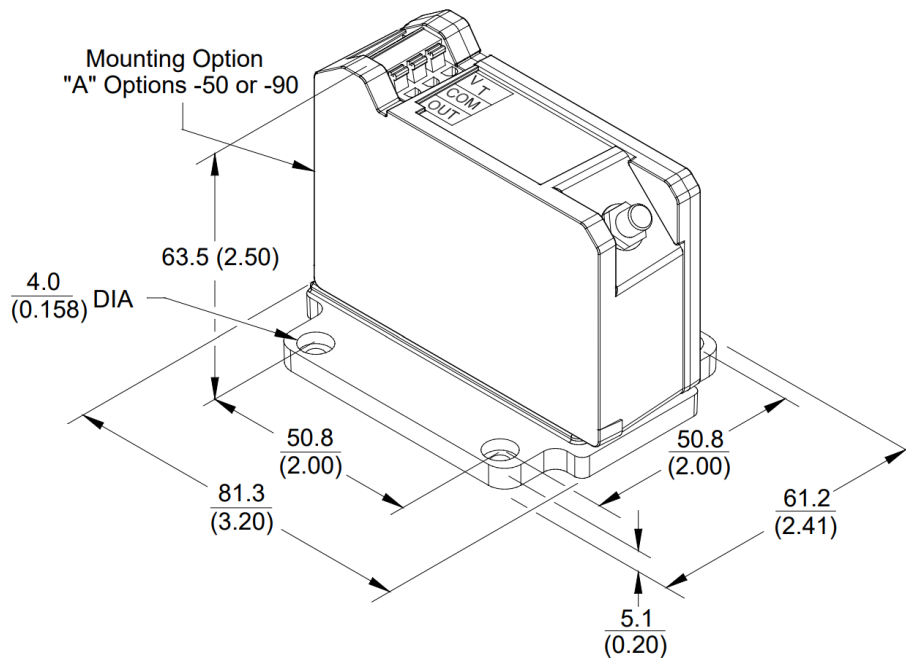
**Figure 16: Installed Connector Protectors**

1. Connector Protector (Fluorosilicone Material)

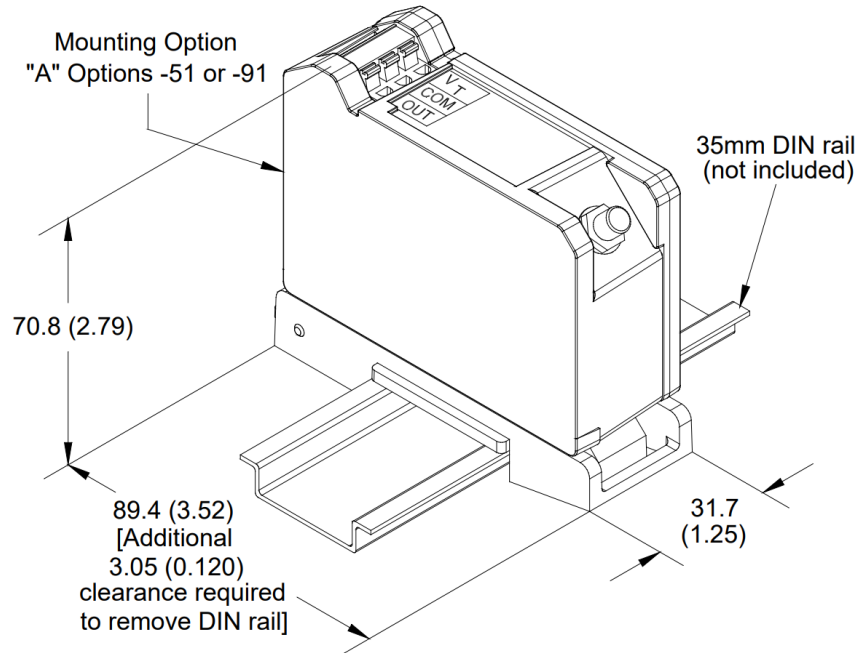


**Figure 17: 330854, 3300 XL 25mm Extension Cable**

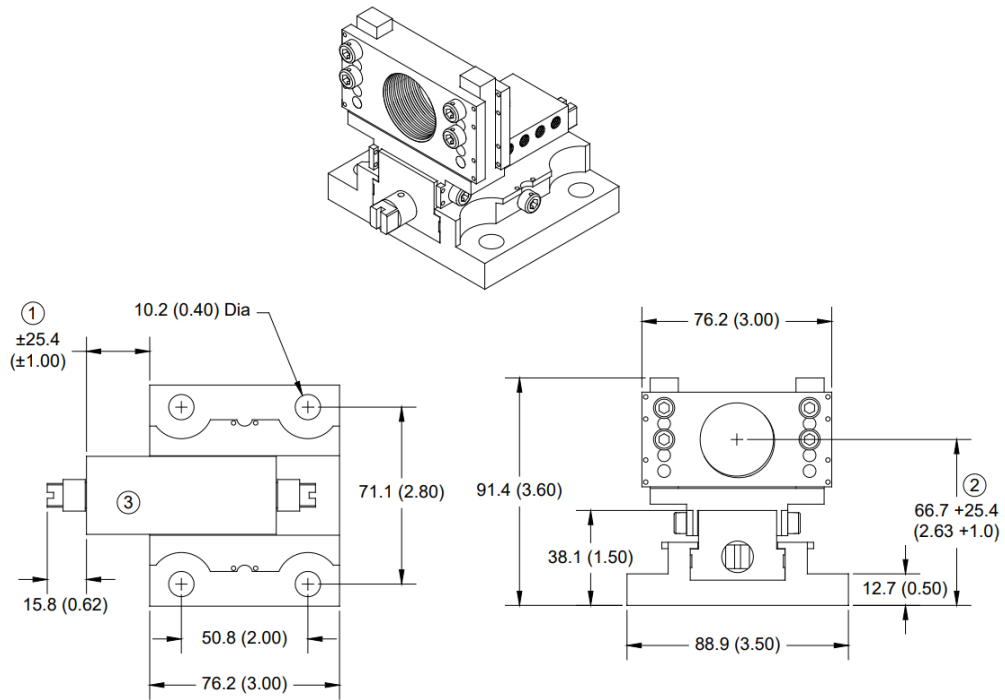
1. Cable Length +20%, -0%
2. Miniature Male Coaxial Connector
3. Customer Shrink Tubing, 2 Places
4. Optional Stainless Steel Armor, PFA Jacket
5. FluidLoc Coaxial Cable, PFA Jacket
6. Miniature Female Coaxial Connector
7. Armor Length = Cable Length - 300 (11.8)



**Figure 18: 330850 Panel Mount 3300 XL 25mm Proximitor Sensor**

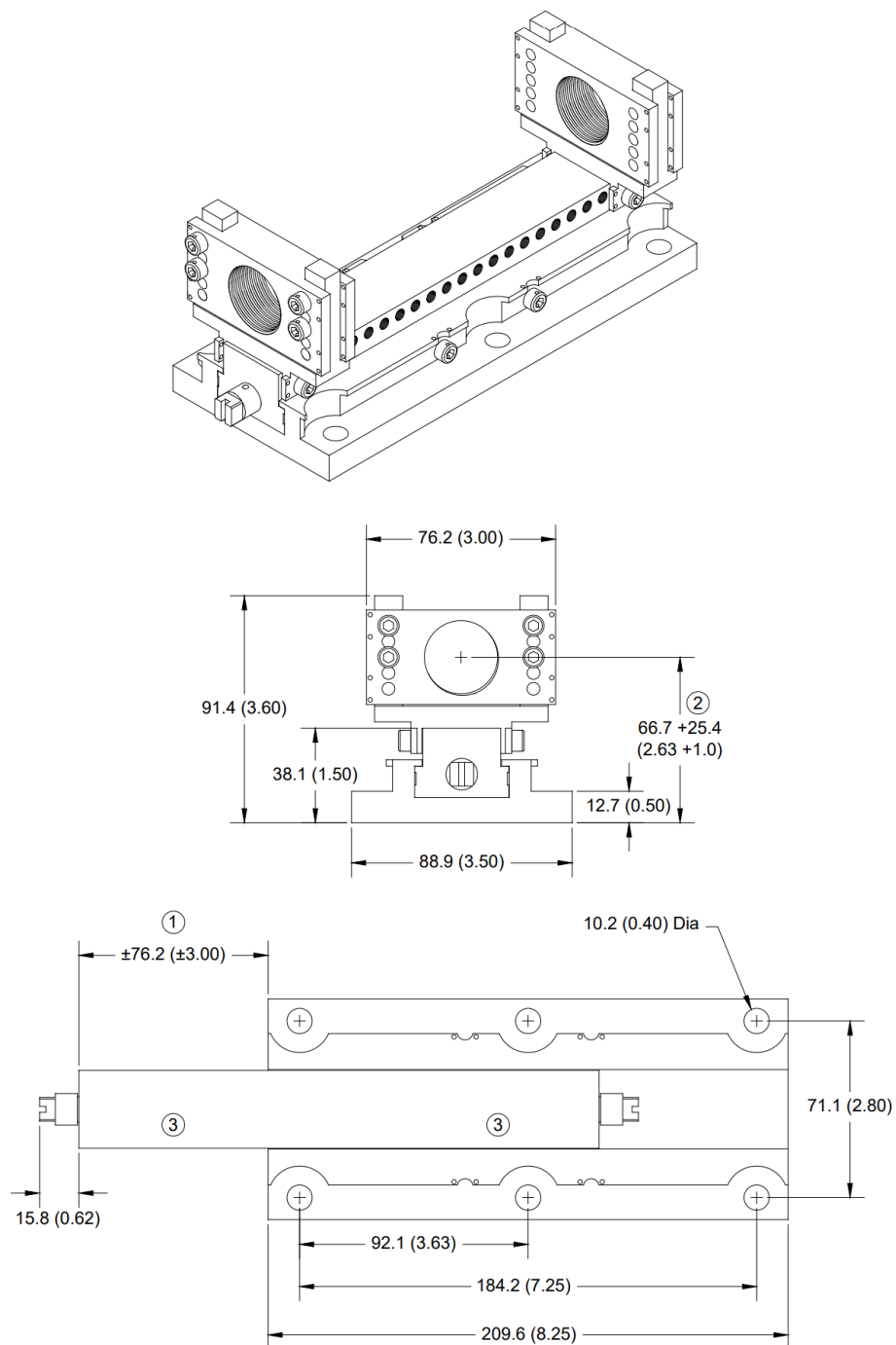


**Figure 19: 330850 DIN Mount 3300 XL 25mm Proximity Sensor**



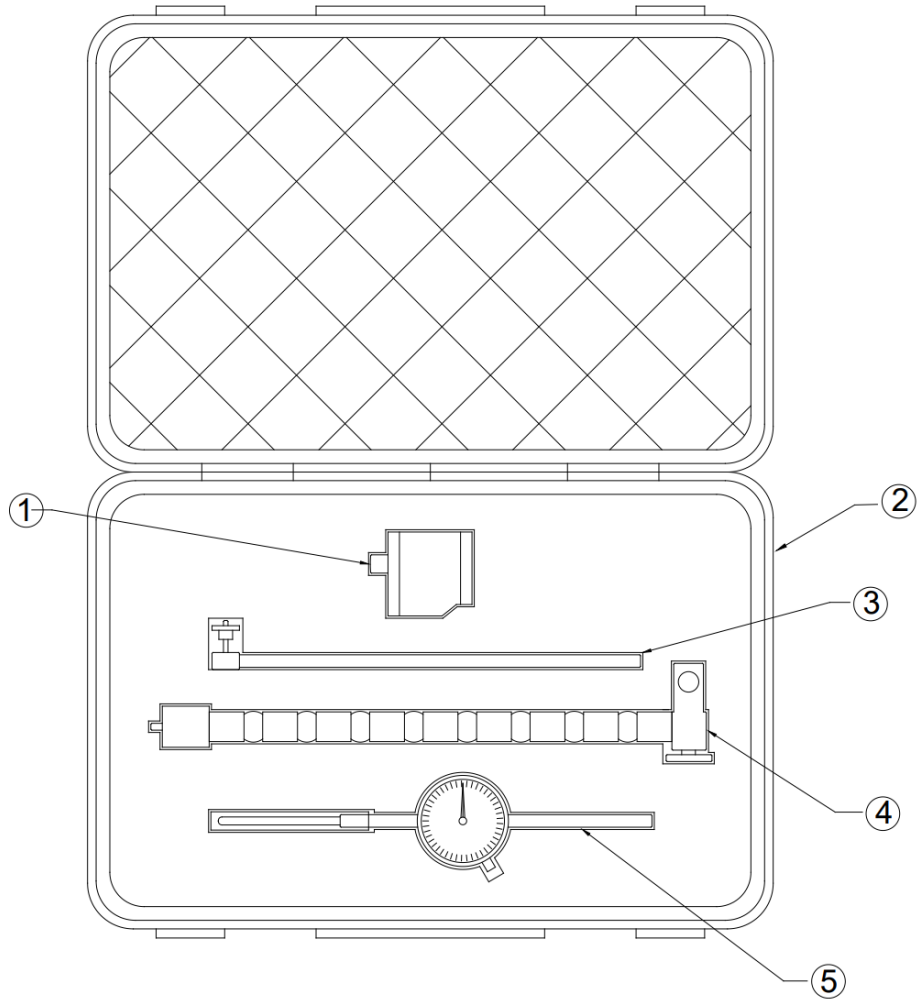
**Figure 20: 330853 Sliding Bracket, Single DE Version**

1. Horizontal Adjustment Range
2. Vertical Adjustment Range
3. Probe Adapter Removed for Clarity



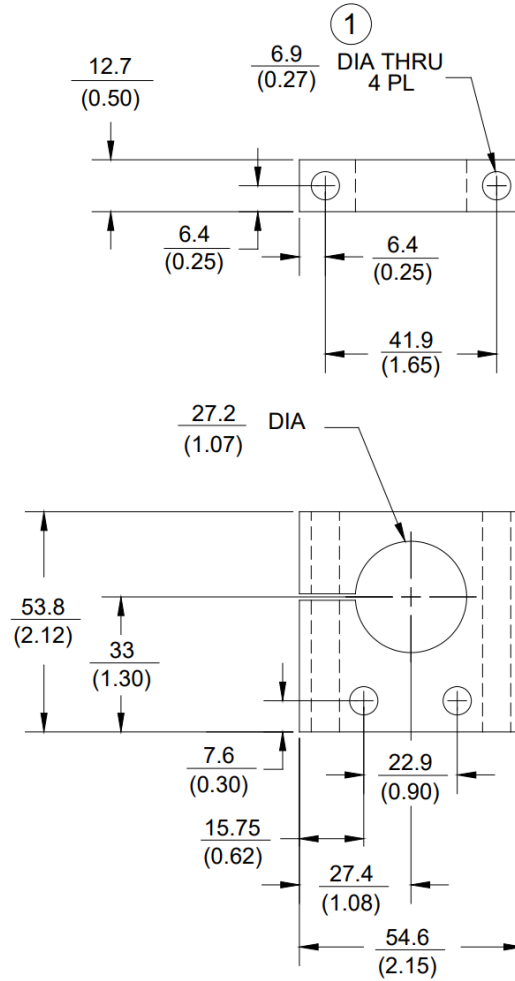
**Figure 21: 330853 Sliding Bracket, CIDE Version**

1. Horizontal Adjustment Range
2. Vertical Adjustment Range
3. Probe Adapter Removed for Clarity



**Figure 22: 163854 Dial Indicator Verification Kit (with cover open)**

1. Magnetic Base
2. Carrying Case
3. Indicator Holding Rod
4. Flexible Mounting Arm
5. Dial Indicator



**Figure 23: 29660-01 Optional Mounting Clamp for -03 and -04 Smooth Case types only**

1. For use with ¼ or M6 bolts and nuts (not provided).

**Notes:**

All dimensions on figures are in millimetres (inches) unless otherwise noted.

Standard mount 1¼ -12 UNF thread probes are supplied with 1½ inch lock nut and 11/8 inch wrench flats.

Standard mount M30x2 thread probes are supplied with 38 mm lock nut and 27 mm wrench flats.

Standard mount 1½ -12 UNF thread probes are supplied with 1¾ inch lock nut and 15/16 wrench flats.

Standard mount M39x1.5 thread probes are supplied with 45 mm lock nut and 36 mm wrench flats.

Stainless steel armor is supplied with PFA outer jacket.

PFA jacket is standard on all non-armored probes.





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1631 Bently Parkway South, Minden, Nevada USA 89423  
Phone: 1.775.782.3611 or 1.800.227.5514 (US only)  
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